

# **THE CLOUD RISES!**

## **WHAT NOW ?**



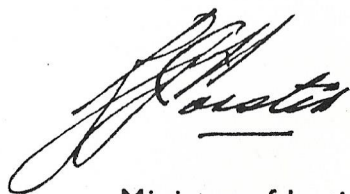


## FOREWORD

**A**t present the chances of a nuclear attack on South Africa are negligible, but no one, and certainly not the Government, can ignore the existence of nuclear weapons and the fact that they may be used in some future war.

The power of all bombs is limited. Even the hydrogen bomb could not blow the earth apart. Nor could it destroy the human race. While it may be the greatest destroyer man has ever wrapped in a single parcel, its total destructive power is still limited. Those unfortunate people directly below an explosion would have practically no chance of survival, but people elsewhere would have such a chance if they know the real dangers of the bomb and the steps that can be taken to survive its effects.

The object of this brochure is to give citizens practical hints about nuclear dangers and the precautions they can take to safeguard themselves, their homes, and their families. It also contains guidance on nuclear explosions, the dangers that accompany them, and the practical steps that can be taken for self-protection.



Minister of Justice.

Gebiedskontroleur/Area Controller,  
Afdeling Noodbeplanning/Division of Emergency Planning,  
Elaresgebou/Building Tel. 763-4651  
ROODEPOORT.

# INFORMATION AND GUIDANCE ON NUCLEAR EXPLOSIONS AND SELF- PROTECTION AGAINST SUCH EXPLOSIONS

## BASIC FACTS.

A nuclear bomb is a deadly weapon of destruction. The power of the bombs exploded over Japan in 1945 was roughly equivalent to that of 20,000 tons of dynamite. Since then, an even more lethal weapon has been developed—the hydrogen bomb with an explosive power equalling that of about **20 million tons** of dynamite. And even this can be stepped up to the explosive power of **200 million tons** of dynamite.

Nuclear bombs can be exploded on the surface, under water, in the air, close to the surface, or high in the sky. The explosion releases energy in the form of light and heat, blast and radio-activity. The quantity depends on the size and design of the bomb, but is tremendous even in the case of the ordinary bomb. The nature and extent of destruction depend on whether the bomb is exploded at a high altitude, on or close to the surface, or under water. An explosion in the sky causes mostly fire and blast damage, while a surface explosion creates a huge crater.

It is uncertain whether you will have warning of an impending nuclear explosion. A surprise attack, and even the local explosion of a stray bomb, is not excluded. But a nuclear weapon gives its own alarm in the form of a blinding light flash which is brighter than the sun and immediately follows the explosion. This flash stays visible for longer than a flash of lightning. One has a fraction of a second in which to react, and on the rapidity of this reaction one's life may depend.

Intense heat and various forms of radio-activity are radiated in all directions. This is followed by a tremendous blast and sound-waves. The intense heat released, converts the components of the bomb, and all matter in the immediate vicinity, into a blazing vapour, called a fireball. This rises to thousands of feet in the sky, expanding all the while and ultimately resembling a mushroom on its stalk. The scene of the explosion is enveloped by a cloud of dust and smoke.

## HOW MUST YOU ACT?

### TAKE COVER IMMEDIATELY!

If you are at home, in your office, or otherwise under shelter:—

- Don't be inquisitive;
- stay away from windows and external walls;
- take cover under a table or bed;
- protect your neck and face with objects within reach.

If you are out-of-doors:—

- Don't be inquisitive, shut your eyes;
- turn your back towards the light flash;
- duck immediately behind the nearest cover such as a wall, bridge, doorway, etc.;
- protect your neck and face with objects within reach.

If you are travelling by car, bus or train:—

- Fall flat on the floor or the seat;
- protect your neck and face.



## THE LIGHT FLASH.

The light flash can cause temporary blindness if your eyes are not protected.

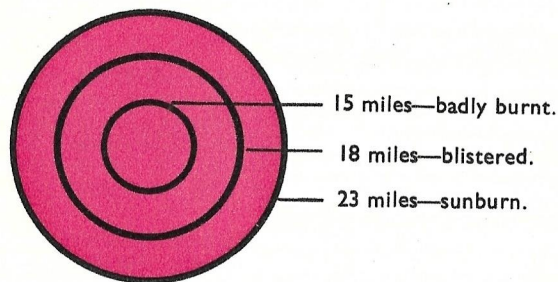
**Shut your eyes and turn your back.**

## HEAT WAVES.

The heat waves radiated by the fireball immediately after the flash, have a temperature higher than that of the sun and travel at a speed of 186,000 miles a second. It can cause serious burns up to a distance of nine miles from the explosion and lighter burns up to a distance of twenty miles. Heat waves penetrating a window, can put curtains, paper, clothing, and furniture, alight.

The following are a few examples of the predictable effects which the heat rays of a hydrogen bomb with an explosive power of 50 million tons of dynamite, exploding on a clear day, could have on unprotected people:—

- Exposed skin badly burnt up to a distance of 15 miles from the explosion;
- blisters up to a distance of 18 miles from the explosion;
- burns, such as caused by the sun, up to a distance of 23 miles.



Mist, haze, and smoke, that might be present, would reduce the intensity of the heat waves.

## WHAT YOU MUST DO.

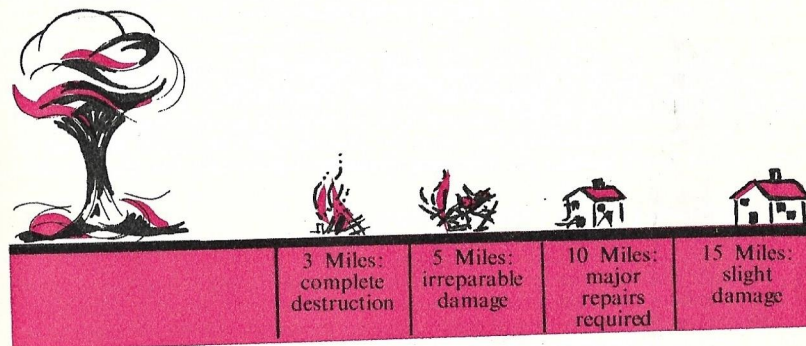
Wherever you may be in the open, fall down flat immediately. The heat waves do not last long and the slightest protection reduces their intensity. Light-coloured loose-fitting clothing, such as that worn in the tropics, is the most suitable and gives more protection than dark-coloured tight-fitting clothing.

## BLAST.

The blast wave travels more slowly than the heat waves. After the light flash has been observed and the heat wave has been felt, several seconds elapse before the blast wave arrives. It is like the lag between a flash of lightning and the ensuing thunderbolt. If caught in the open during a nuclear explosion, you can use this interval to find protection against the blast wave. If a person is, for example, 10 miles from the point of explosion, the blast wave would take 35 seconds to reach him.

The greatest danger in a building struck by blast lies in flying pieces of glass, bricks and other objects. Up to 15 miles from the point of explosion, people are exposed to this type of injury. There would be few survivors within a radius of two miles from the centre of the explosion. The greater the distance from the centre, the lower the percentage of people killed and injured.

The damage a hydrogen bomb with the explosive power of 50 million tons of dynamite could do to buildings, is shown in the illustration hereunder:—



A nuclear bomb with an explosive power of 200 million tons of dynamite increases the approximate ranges of damage shown above to 5, 8, 16 and 24 miles, respectively.

As the strength of buildings is not uniform, these figures are only approximate. Concrete buildings offer the most, and wooden structures, the least resistance, to blast.

## LIFE-SAVING REACTIONS.

### Stay flat on the ground.

Wounds are caused by being bodily tossed about or being struck by flying and falling objects. If you are inside a building, flatten out next to an inner wall or duck under a bed or table. Avoid windows. Bury your face in your folded arms, and, most important, DO NOT LOOK UP TO SEE WHAT IS COMING.

## RADIATION.

When an atomic bomb explodes on or near the ground, large quantities of matter like soil, rocks and bricks, melt or evaporate and are sucked up by the fireball and carried high into the sky. In its ascent the fireball also sucks up soil, rocks, and other matter, in their original form. All this becomes radio-active. The heavier objects later fall back to earth around the point of explosion. In cooling, the vaporized matter forms minute particles and dust which are driven by the winds until they drift back to the earth. This is called radio-active fall-out. Each particle forming the fall-out, gives off radio-activity like a miniature X-ray machine.

The radio-active fall-out can sometimes be seen, but the radio-activity which it radiates cannot be seen, felt or smelt. It is impossible to judge from below where the fall-out will settle because of the changeable winds at various levels above the earth. It may settle hundreds of miles from the explosion.



A nuclear explosion causes both immediate and lingering radiation. The former is released at the time of the explosion, lasts for only a few seconds and is dangerous only in the immediate vicinity of the explosion. Radio-active fall-out emits the lingering radiation.

The radio-activity of the fall-out diminishes rapidly after the explosion. After eight hours about 90% of the radio-activity is lost, and after two days, 99%. After two weeks 99.9% of the radio-activity is spent. The remaining 0.1% could nevertheless still be dangerous if ingested or inhaled.

## INJURIES AND TREATMENT.

Nuclear warfare has much in common with conventional warfare in the sense that large numbers of people sustain wounds and injuries differing in no way from those sustained in conventional warfare.

These injuries would include the following:—

- (1) Suffocation from crumbling masonry.
- (2) Head injuries of varying severity.
- (3) Chest, abdominal and trunk injuries.
- (4) Open wounds with or without bleeding.
- (5) Burns unassociated with radio-activity.
- (6) Fractures, compound and simple.
- (7) Injuries to the eyes, ears, nose and throat.
- (8) Shock.

The injuries which nuclear explosions can cause and the recommended first aid treatment are outlined below.

## TEMPORARY BLINDNESS.

The intense light flash which is the first indication of a nuclear detonation, can cause temporary blindness, lasting from seconds to half an hour, if the explosion occurs in daylight. If it occurs at night, blindness may last much longer.

Besides resting the eyes by keeping them closed, there is no specific treatment. Temporary blindness can be avoided by refraining from looking at the flash.

If you are out of doors at the time of the explosion, keep your face buried in your arms for a few seconds.

## BURNS.

At and near the explosion the most intense temperatures are experienced—temperatures that extinguish life instantaneously. People not close enough to be incinerated, are burnt, but not necessarily fatally. A large number of such casualties may be expected. The treatment is the same as for ordinary burns.

## BLAST INJURIES.

These are not peculiar to nuclear blasts, but occur in varying strength whenever explosives are detonated. People near the point of explosion but not close enough to be killed outright, usually sustain lung injuries, caused by the sudden changes in the air pressure. They collapse and show the symptoms of shock. Their faces turn

blue and they cough up frothy blood. Collapsing buildings, and bricks and other objects tossed about, cause fractures, crush injuries and lacerations. First aid treatment for such cases comprises:—

- (a) Treatment for shock;
- (b) keeping the air passages open; and
- (c) treatment for fractures, crush injuries, and lacerations.

## RADIATION SICKNESS.

Radiation sickness is caused by the radiation emitting from the explosion and from fall-out particles. It is not contagious or infectious. The radio-activity of the fall-out is not transferred to other objects. Food and water exposed to radio-active fall-out, is contaminated only to the extent that it may take up fall-out particles. Exposed food on which such particles have settled, can be made safe by washing, brushing or peeling. From water supplies they can be removed by sedimentation or filtering. People who have fall-out particles on their bodies or clothing, would not carry enough to endanger others, but they should, for their own protection, remove and brush off their clothing and also wash themselves.

## RADIATION IN THE AIR.

After a nuclear explosion the air is contaminated only to the extent that it contains radio-active fall-out particles and matter. The most dangerous fall-out particles—early fall-out—reaches the earth within one day from the detonation, but their mere passage through the air does not contaminate it.

## SPECIAL MEDICINES OFFER LITTLE HOPE.

Although many experiments have been made, it is unlikely that a tablet or any other form of medicine offering protection against the effects of fall-out radiation, will be developed. Shielding against fall-out is therefore needed. The Government will release information on shelters against fall-out.

The principal ailment unique to nuclear warfare is radiation sickness. Its severity depends on the amount of radiation and the duration of one's exposure. The human body can absorb and overcome radiation damage without serious permanent injury. Only when too big a dose is taken too quickly, does sickness (or possibly death) result. Radiation sickness is not contagious, regardless of the duration of the victim's exposure. It is important to know that many of the symptoms of the sickness are experienced by anyone subjected for some time to anxiety and great stress.

The symptoms of the three degrees of radiation sickness are:—

### MILD:

The very sensitive person will show signs of nausea, lack of appetite, and fatigue, within a few hours after exposure. He should rest but can continue normal activities. Recovery will be rapid.

### MODERATE:

The same symptoms appear, but within two hours of exposure, and more markedly. Vomiting, and even prostration, may occur. By the third day recovery may seem complete, but the symptoms may recur during the next few days or weeks.



## SEVERE:

All the early symptoms show up and may vanish after a few days. But, after a week or so, fever, soreness of the mouth, diarrhoea, and ulceration and bleeding of the mouth and gums, appear. By the third week the patient's hair may start to fall out. Recovery may take seven to eight weeks. When the victim has been exposed to intense radiation, death follows within a few hours or weeks.

The following treatment is recommended:—

- General rest;
- aspirin for headache;
- tablets for nausea.

Liquids, as soon as possible, for diarrhoea and vomiting, but not before vomiting has stopped (ideally, one teaspoonful of table salt to one quart—two pints—of cold water, to be sipped slowly). The same solution can be used as a mouthwash.

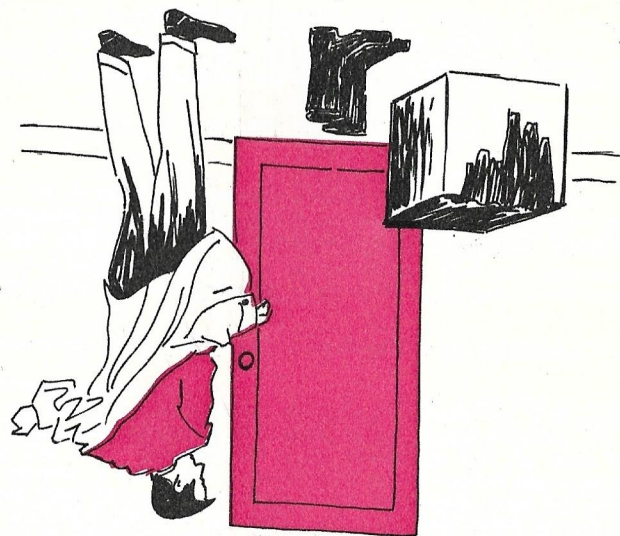
## GET THE PATIENT TO A DOCTOR AS SOON AS POSSIBLE.

The effects of radiation may be delayed for days, weeks, or even months. For the sake of the individual as well as the welfare of the community, it is therefore important that victims should be kept under constant observation for months and even years.

## DECONTAMINATION OF PERSONS.

Persons who are possibly contaminated with radio-active matter or particles, must act as follows:—

- Remove clothes, shoes, etc. on which there may be particles and dust;
- wash all parts of the body thoroughly with hot water and soap—a thorough shower would be the answer;
- ensure particularly that all dust particles are removed from the hair and from under the nails;
- in entering buildings or shelters, ensure that they do not contaminate such buildings or shelters with clothing or objects on which particles have settled.



- Sorg dra dat die gebou of skulpiek wat binnegegaan word nie met kiere of voorwerpe waarop stofdeeltjies geval het, besmet word nie.
- Veral sorg dat alle stofdeeltjies uit die hare en van onder die nels verwyder is;
- sou die regte ding wees;
- alle liggaamsdele deeglik was met baie warm water en seep—'n deeglike stortbad;
- Kiere, skoen, ens., waarop die deeltjies en stof moontlik kan wees, uitrek;
- optree:—

Persone wat misken met radio-aktiewe stof of deeltjies besmet is, moet soos volg

## ONTSMETTING VAN PERSONE.

Die gevolge van bestraling mag dae, weke en selfs maande lank vertraag word. Voortdurende waarneming van die pasiënt oor 'n tydperk van maande en selfs jare is derhalwe 'n saak van groot belang vir sowel die individu as die openbare welsyn.

## BRING DIE PASIËNT SO GOU MOONTLIK NA 'N GENEESHEER.

Vloestowwe so gou moontlik vir diarree en opbringer maar nie voordat braking opehou het nie (die ideale vloestof is een teelepel tafelsout op 'n kwart (twee pinte) koue water wat in klein teugies geneem moet word). Dieselfde oplossing kan as 'n mond-spoelmiddel gebruik word.

Algemene rus;  
aspirien vir hoofpyn;  
tablet vir naartrek.

Behandel die simptome op die volgende wyse:—

Die dood volg binne ure of weke as die persoon aan hewige bestraling blootgestel was.  
Al die vroeë simptome verskyn en kan weer binne 'n paar dae verdwyn. Na 'n week of meer volg koorsigheid, seermond en diarree, verswering en bloeding van die tandvleis en die mond egter, en teen omtrent die derde week mag die pasiënt se hare begin uitval. Dit mag sewe tot agt weke neem om te herstel.

## ERNSTIG:



Die radio-aktiewe neerslag kan soms gesien word, maar die radio-aktiwiteit wat dit uitstraal kan nie gesien, gevoel of geruik word nie. Dit is nie moontlik om vanaf die grond vas te stel waar die neerslag na die aarde sal terugslaf nie omdat die windrigtings op verskillende hoogtes bokant die aarde veranderlik is. Dit kan honderde myle vanaf die ontploffing terugslaf.

'n Kernontploffing veroorsaak beide onmiddellike en vertraagde straling. Eersgenoemde word tydens die ontploffing vrygestel, duur slegs enkele sekondes en is gevaarlik slegs in die onmiddellike omgewing van die ontploffing. Radio-aktiewe neerslag gee die vertraagde straling af.

Die radio-aktiwiteit van die neerslag verminder vinnig na die ontploffing. Agt uur daarna verloor dit ongeveer 90% van die radio-aktiwiteit en 99% na twee dae. Na twee weke het 99.9% van die radio-aktiwiteit daarvan verlore gegaan. Die oorblywende 0.1% kan nietemin gevaarlik wees indien dit deur die mond of neus ingeneem word.

## BESERINGS EN BEHANDELING.

Kernoorlogvoering kom baie ooreen met konvensionele oorlogvoering omdat 'n groot getal persone wonde en beserings sal opdoen wat in geen opsig verskil van dié wat tydens konvensionele oorlogvoering opgedoen kan word nie.

Die beserings sal die volgende insluit:—

- (1) Versmoring as gevolg van geboue wat intuïmel.
- (2) Hoofbeserings van verskillende grade van ernstigheid.
- (3) Borskas-, buik- en rompbeserings.
- (4) Oop wonde met of sonder bloeding.
- (5) Brandwonde wat nie met radio-aktiwiteit gepaard gaan nie.
- (6) Oop, sowel as toe frakture.
- (7) Beserings van die oë, ore, neus en keel.
- (8) Skok.

Die beserings wat kernontploffings kan meebring en die noodhulpbehandeling wat daarvoor aanbeveel word, volg kortliks hieronder.

## TYDELIKE BLINDHEID.

Die intense ligflits wat die eerste aanduiding van 'n kernontploffing is, kan tydelike blindheid veroorsaak wat vir tydperke van sekondes tot 'n halfuur kan duur indien die ontploffing gedurende daglig plaasvind. Indien dit in die nag plaasvind, kan blindheid baie langer duur.

Behalwe deur die oë te laat rus deur hulle toe te hou, is daar geen besondere behandeling nie. Tydelike blindheid kan voorkom word deur nie na die ligflits te kyk nie. As u buitenshuis is, hou u arms oor u gesig vir 'n paar sekondes na die ontploffing.

## BRANDWONDE.

Die hoogste temperatuur word by en naby die ontploffing ondervind—'n temperatuur wat alle lewe oombliklik vernietig. Mense wat nie na genoeg is om veras te word nie, sal verbrand, maar nie noodwendig dodelik nie en 'n groot aantal sulke ongevallen kan verwaag word. Hierdie gevalle word soos vir gewone brandwonde behandel.

## LUGSKOKGOLFBESERINGS.

Sulke beserings is nie eie aan kernontploffings nie, maar kom in mindere of meerdere mate voor in alle gevalle waar plofstowwe gebruik word.

Mense wat naby die ontploffingspunt is, maar nie na genoeg daaraan om op die plek gedood te word nie, ly gewoonlik aan longbeserings wat veroorsaak word deur die skielike veranderinge in die lugdruk rondom hulle. Hulle stort ineen en vertoon die

simptome van skok. Hulle word blou in die gesig en hoës bloedskuim op. Geboue wat ineenstort en bakstene en ander voorwerpe wat rondgeslinger word, veroorsaak frakture, vergruising en kneusplekke en snywonde. Noodhulp in sulke gevalle bestaan uit die volgende:—

- (a) Behandeling vir skok;
- (b) oophou van die lugweë; en
- (c) behandeling vir frakture, snywonde, vergruisings en kneusplekke.

## STRALINGSIEKTE.

Stralingsiekte word veroorsaak deur die uitstraling wat afkomstig is van die ontploffing en van die neerslagdeeltjies. Dit is nie oordraagbaar of aansteeklik nie. Die radio-aktiwiteit van die neerslag maak niks radio-aktief nie. Voedsel en water, wat aan radio-aktiewe neerslag blootgestel is, word net in die mate wat dit neerslagstof bevat, besoedel.

Blootgestelde voedsel waarop neerslagstof of materiaal is, kan veilig gemaak word deur dit te was, af te borsel of af te skil. Neerslagstof kan van watervoorrade verwyder word by wyse van sedimentasie of filtrering. Mense wat neerslagstof op hul klere of aan die liggaam het, sal nie genoeg meedra om ander in gevaar te stel nie, maar hulle moet hulself vir eie beskerming was en die klere uittrek en afstof.

## UITSTRALING IN DIE LUG.

Na 'n kernbomontploffing sal die lug deur radio-aktiewe neerslag besoedel wees net in die mate waarin dit neerslagstof of materiaal bevat. Die gevaarlikste neerslagdeeltjies—vroë neerslag—sal die aarde binne die eerste dag na die ontploffing bereik, maar hul blote trek deur die lug sal dit nie besoedel nie.

## SESIALE MEDISYNES BIED MIN HOOP.

Hoewel baie eksperimente reeds uitgevoer is, is dit nie waarskynlik dat 'n pil of enige ander tipe medisyne vervaardig sal word wat mense teen die effek van radio-aktiewe uitstraling sal kan beskerm nie. Skuiling teen die neerslag is derhalwe nodig.

Die Regering sal inligting vrystel oor skuilings teen neerslag.

Stralingsiekte is die vernaamste ongesteldheid wat eie is aan kernoorlogvoering. Die ernstigheid daarvan hang af van die hoeveelheid van uitstraling en die tydskedure waaraan 'n persoon daaraan blootgestel was. Dit is so omdat die liggaam 'n sekere hoeveelheid radio-aktiewe beskadiging sonder permanente letsels kan weerstaan. Dit is alleen wanneer 'n mens 'n te groot dosis te vinnig ontvang dat siekte (of moontlik die dood) kan volg. Stralingsiekte is nie aansteeklik nie; dit maak nie saak hoe lank 'n persoon aan bestraling blootgestel is nie. Dit is belangrik om te weet dat baie van die siekte se simptome kan voorkom by enigeen wat 'n tyd lank in angs en groot spanning verkeer.

Die simptome van die drie grade van stralingsiekte is die volgende:—

## LIGTE:

Die baie sensitiewe persoon sal tekens toon van mislikheid, gebrek aan eetlus en afgematheid binne 'n paar uur na blootstelling. So 'n persoon behoort te rus maar kan sy normale aktiwiteite voortsit. Hy sal vinnig herstel.

## MATIG:

Dieselfde simptome verskyn, maar binne twee uur na blootstelling en dit is meer opvallend. Opbring en selfs algehele uitputting kan voorkom. Dit kan teen die derde dag skyn asof die persoon volkome herstel het, maar die simptome mag hulle vir die daaropvolgende paar dae of weke herhaal.



## DIE LIGFLITS.

Die ligflits kan tydelike blindheid veroorsaak as die oë nie beskerm is nie.

**Sluit u oë en draai u rug daarop.**

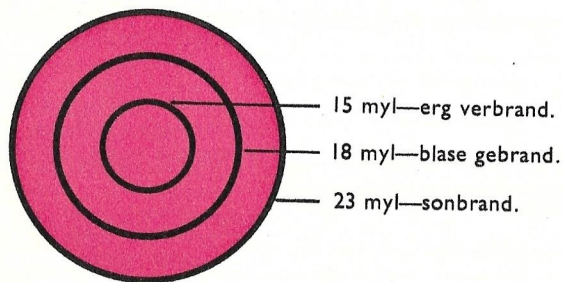
## HITTEGOLWE.

Die hittestrale van die vuurbal het temperature hoër as dié van die son en beweeg teen 'n snelheid van 186,000 myl per sekonde. Die vuurbal stuur dit uit onmiddellik na die ligflits.

Dit kan ernstige brande tot op 'n afstand van nege myl en geringer brande tot op 'n afstand van twintig myl van die ontploffing veroorsaak. Wanneer die hittegolwe bv. deur 'n venster dring, kan gordyne, papier, kledingstukke en meubels aan die brand slaan.

Hier volg enkele voorbeelde van die voorspelbare uitwerking wat die hittestrale van 'n waterstofbom met 'n ontploffingskrag gelykstaande met dié van 50 miljoen ton dinamiet wat op 'n helder dag ontplof, op onbeskermd persone kan hê:—

- ontblote vel erg verbrand tot op 'n afstand van 15 myl van die ontploffing;
- brandblase op die vel tot op 'n afstand van 18 myl van die ontploffing; en
- velbrand, soortgelyk aan dié deur die son veroorsaak, tot op 'n afstand van 23 myl.



Die aanwesigheid van mistigheid, dynsigheid en rook in die lug verminder die intensiteit van die hittestrale.

## WAT U MOET DOEN.

Val onmiddellik plat waar u ook al buite mag wees.

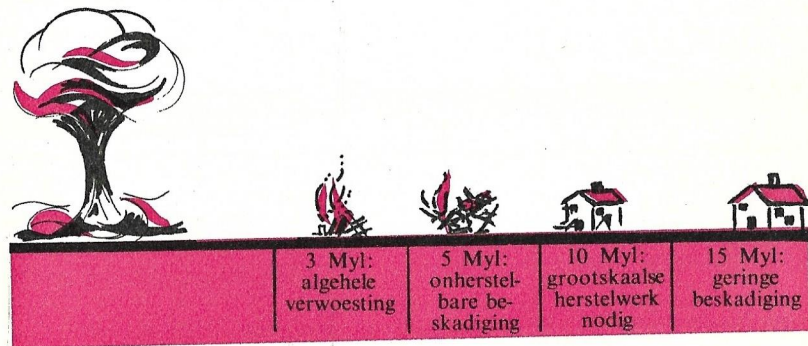
Die hittestrale hou nie lank aan nie en die geringste beskerming verminder ook hulle intensiteit. Ligkleurige klere wat los sit, soos dié wat in die trope gedra word, is die geskikste en bied meer beskerming as donker nousluitende klere.

## LUGSKOK.

Die lugskokgolf beweeg stadiger as die hittegolwe. Verskeie sekondes verloop nadat 'n persoon die ligflits waargeneem of die hittegolf gevoel het, voordat die lugskokgolf hom bereik. Dit is soos die tydverloop tussen die waarneming van 'n weerligstraal en die daaropvolgende donderslag. As 'n kernontploffing plaasvind terwyl u buitenshuis is, kan u gedurende hierdie tydverloop skuiling teen die lugskokgolf vind. As 'n persoon bv. 10 myl van die ontploffingspunt is, sal dit 35 sekondes duur voordat die lugskokgolf hom bereik.

Die grootste gevaar van die lugskokgolf wanneer dit 'n gebou tref, lê daarin dat glasskerwe, bakstene en ander voorwerpe weggeslinger word. Persone kan tot op 'n afstand van 15 myl van die ontploffingspunt daardeur beseer word. Daar sal min oorlewendes binne 'n omtrek van tot twee myl van die ontploffingspunt wees. Hoe groter die afstand vanaf die ontploffingspunt, hoe kleiner sal die persentasie wees van persone wat gedood en beseer is.

Die skade wat deur 'n waterstofbom met 'n ontploffingskrag gelykstaande met dié van 50 miljoen ton dinamiet aan geboue aangerig kan word, word in die skets hieronder aangetoon:—



'n Kernbom met 'n ontploffingskrag gelykstaande met dié van 200 miljoen ton dinamiet vermeerder die afstande van die skade soos hierbo aangetoon by benadering tot onderskeidelik 5, 8, 16 en 24 myl.

Hierdie afstande is by benadering aangesien die sterkte van geboue verskil. Versterkte betongeboue is die meeste, en geboue met 'n houtraamwerk, die minste teen die lugskokgolf bestand.

## DIE REDDENDE REAKSIES.

**Bly lê plat op die grond.**

Wonde word opgedoen deurdat mense rondgeslinger word en deur vliegende en vallende voorwerpe getref word.

As u binnenshuis is, val plat langs 'n binnemuur of duik onder 'n bed of tafel in. Vermoed die vensters. Verberg u gesig in die gevoude arms en wat die belangrikste is, MOENIE OPKYK OM TE SIEN WAT AAN DIE KOM IS NIE.

## STRALING.

Wanneer 'n atoombom op of naby die grond ontplof, smelt of verdamp groot hoeveelhede materie soos grond, klippe en bakstene en dit word deur die vuurbal opgesuig, en hoog in die lug opgedra, terwyl met die styging van die vuurbal, grond, klippe en ander materie net so in die lug opgesuig word. Al hierdie materie word radio-aktief. Die swaarder voorwerpe val later rondom die ontploffingspunt na die grond terug. Die gas-omskepte materie vorm na afkoeling fyn deeltjies en stof wat deur die wind voortgedra word totdat dit na die aarde terugsig. Dit word radio-aktiewe neerslag genoem. Elke deeltjie wat die neerslag vorm, gee radio-aktiwiteit af asof dit 'n miniatuur-X-straalmasjien is.



## VOORWOORD

**D**aar is tans min rede om 'n kernwapenaanval op die Republiek van Suid-Afrika te vrees. Die bestaan van kernwapens en die feit dat dit in 'n toekomstige oorlog gebruik kan word, mag egter deur niemand verontagsaam word nie—ook nie deur die Regering nie.

Die krag van alle bomme is beperk. Selfs die waterstofbom kan nie die aarde aan flarde blaas nie en ook nie die ganse mensdom vernietig nie. Die kernbom is nou wel die grootste vernietiger wat die mens nog in 'n enkele pakket opgemaak het maar sy totale vernietigingskrag bly steeds beperk. Die ongelukkiges reg onder die ontploffing het amper geen kans op oorlewing nie—die ander wel as die werklike gevare van die bom aan hulle bekend is, asook die stappe wat gedoen kan word om dit te oorleef.

Die doel van hierdie brosjure is om aan elke burger praktiese wenke te verstrek teen die kernwapengevaar sodat hy voorsorg kan tref vir sy eie veiligheid en dié van sy huis en gesin. Dit bevat voorligting en leiding oor kernwapenontploffings, die gevare wat daarmee gepaard gaan en die praktiese stappe wat 'n mens kan doen vir beskerming daarteen.



Minister van Justisie.

# INLIGTING EN VOORLIGTING OOR KERNWAPENONTPLOFFINGS EN SELFBESKERMING DAARTEEN

## BASIESE FEITE.

'n Kernbom is 'n dodelike vernietigingswapen. Die krag van die bomme wat in 1945 oor Japan ontplof is, is by benadering gelykstaande met dié van 20.000 ton dinamiet. Sedertdien is 'n nog dodeliker vernietigingswapen—die waterstofbom met 'n ontploffingskrag wat gelykstaande is met sowat 20 miljoen ton dinamiet—ontwikkel. Die ontploffingskrag van 'n waterstofbom kan tot dié van 200 miljoen ton dinamiet verhoog word.

Kernbomme kan op die grond, onder die water, in die lug, naby die grond of hoog in die lug ontplof word. Energie in die vorm van lig en hitte, lugdruk en radio-aktiwiteit word vrygelaat deur die ontploffing. Die hoeveelheid daarvan hang af van die grootte en ontwerp van die bom, maar selfs in die gewone bom is die hoeveelheid uitermate groot. Die aard en die omvang van die vernietiging hang eweneens daarvan af of die bom hoog in die lug, op of naby die grond of onder die water ontplof is. 'n Ontploffing in die lug veroorsaak gewoonlik meer brand- en lugskokskade, terwyl dié, op die grond 'n groot krater veroorsaak.

Dit is onseker of u gewaarsku sal word teen die dreigende gevaar van 'n kernontploffing. 'n Verrassingsaanval en selfs 'n verdwaalde bom of een wat per ongeluk hier ontplof, is nie uitgesluit nie. Die kernwapen gee egter sy eie alarmenteken wat ook die moontlike gevolge aankondig. Dit is die verblindende ligflits wat baie helderder is as die son en wat onmiddellik op die ontploffing volg. Dit is langer sigbaar as 'n weerligstraal en 'n mens het 'n gedeelte van 'n sekonde oor om gepas te reageer. U lewe kan afhang van die snelheid van u reddende reaksies.

Intense hitte en verskeie vorms van radio-aktiwiteit word deur die ligflits in alle rigtings uitgestraal. Dit word gevolg deur 'n geweldige lugskok en klankgolwe. Die hoë hitte wat vrygestel word, omskep die bestanddele van die bom en alle materie in die onmiddellike omgewing van die ontploffing in 'n gloeiende damp. Dit word die vuurbal genoem. Dit styg vinnig tot duisende voet in die lug en word ook groter. Dit lyk later soos 'n paddastoel op sy steel. Die ontploffingstoneel op die grond word in 'n wolk van stof en rook gehul.

## HOE TREE U OP ?

### SOEK ONMIDDELLIK SKUILING !

As u in die huis, op kantoor of andersins onder dak is:—

- moet nie nuuskierig wees nie;
- bly weg van vensters en buitmure;
- soek beskutting onder 'n tafel of 'n bed;
- beskerm u nek en gesig met voorwerpe wat byderhand is.

As u buite is:—

- moenie nuuskierig wees nie, sluit u oë;
- draai u rug op die ligflits;
- duik onmiddellik agter die naaste skuiling soos 'n muur, brug, deuropening, ens., in;
- beskerm u nek en gesig met voorwerpe wat byderhand is.

As u in u motor, 'n bus of 'n trein reis:—

- val plat op die vloer of die bank;
- beskerm u nek en gesig.



# **DIE WOLK VERRYS! WAT NOU ?**



AFDELING NOODBEPLANNING—OORLEWINGSBROSJURE No. 2